

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

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To:

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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/GB2004/001079

International filing date (day/month/year)
12.03.2004

Priority date (day/month/year)
15.03.2003

International Patent Classification (IPC) or both national classification and IPC
H01L51/30, C09K11/06, H05B33/14, C07F5/02

Applicant
ELAM-T LIMITED

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☒ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA220.

3. For further details, see notes to Form PCT/ISA220.

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10/549430

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/GB2004/001079

JC20 Rec'd PCT/PTO 15 SEP 2009

Box No. I Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/GB2004/001079

Box No. II Priority

1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | |
|-------------------------------|-------------|------|
| Novelty (N) | Yes: Claims | 1-36 |
| | No: Claims | - |
| Inventive step (IS) | Yes: Claims | 1-36 |
| | No: Claims | - |
| Industrial applicability (IA) | Yes: Claims | 1-36 |
| | No: Claims | - |

2. Citations and explanations

see separate sheet

Box No. VI Certain documents cited

1. Certain published documents (Rules 43*bis*.1 and 70.10)

and / or

2. Non-written disclosures (Rules 43*bis*.1 and 70.9)

see form 210

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/GB2004/001079

1020 Rec'd PCT/PTO 15 SEP 2005

The following documents are referred to in this opinion:

- D1: CHENG, CHUNG-CHIH ET AL: "Syntheses and remarkable photophysical properties of 5-(2-pyridyl) pyrazolate boron complexes; photoinduced electron transfer" CHEMICAL COMMUNICATIONS, no. 20, 3 October 2003 (2003-10-03), pages 2628-2629, XP002286359 ISSN: 1359-7345
- D2: US-B-6 368 7311 (HEUER HELMUT-WERNER ET AL) 9 April 2002 (2002-04-09)
- D3: LIU Y ET AL: "Highly efficient white organic electroluminescence from a double-layer device based on a boron hydroxyphenylpyridine complex" ANGEWANDTE CHEMIE, INTERNATIONAL EDITION, vol. 41, no. 1, 4 January 2002 (2002-01-04), pages 182-184, XP002286360 ISSN: 1433-7851
- D4: US-B-6 287 7131 (HEUER HELMUT WERNER ET AL) 11 September 2001 (2001-09-11)
- D5: LI ET AL: "A mixed pyridine-phenol boron complex as an organic electroluminescent material" CHEMICAL COMMUNICATIONS, no. 16, 2000, pages 1551-1552, XP002231558 ISSN: 1359-7345
- D6: WU Q ET AL: "Synthesis, structure and electroluminescence of BR₂q (R = Et, Ph, 2-naphthyl and q = 8-hydroxyquinolato)" CHEMISTRY OF MATERIALS, vol. 12, no. 1, January 2000 (2000-01), pages 79-83, XP000919563 ISSN: 0897-4756

Re Item V.

With respect to documents D2-D6, the subject-matter of claims 1-36 is to be regarded as being novel and based upon an inventive step as said subject-matter is not disclosed in documents D2-D6 and, because of the considerable structural difference between the electroluminescent boron compounds disclosed in D2-D6 and those presently-claimed, the presently-claimed compounds and their use are not suggested by the prior art.

Re Item VI.

D1, published on 3 October 2003, i.e. in the priority interval of the present application, is not to be considered as prior art according to Rule 64.3 PCT.

It is, however, already pointed out that the content of D1 may be taken into account in the examination of the patentability of the presently-claimed subject-matter of the present application when the application enters the regional phase of the proceedings depending upon the validity of the priority claimed for the present application.

Should the priority of the present application not turn out to have been validly claimed, compound 2d could possibly be seen as novelty-destroying to claims 1-4, 6, 7, 10 and 35. Also the use of the compounds according to D1 in electroluminescent devices would appear to be suggested in D1 such that the subject-matter of claims 12-31 might not be seen as being based upon an inventive step.

Re item VIII.

On page 1 of the description the patent application numbers PCT/GB98/01773, PCT/GB99/03619, PCT/GB99/04030, PCT/GB99/04024, PCT/GB99/04028 and PCT/GB00/00268 correspond to the publication numbers WO98/58037 (already referred to in the same paragraph), WO00/26323, WO00/32719, WO00/32717, WO00/32718 and WO00/44851 respectively.